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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/990,297 | 11/23/2001 | Masahiko Tsuchiya | 111200 | 2735 |

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| EXAMINER |
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LIU, MING HUN

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| ART UNIT | PAPER NUMBER |
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2675

DATE MAILED: 02/26/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/990,297

Applicant(s)

TSUCHIYA, MASAHIKO

Examiner

Ming-Hun Liu

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1, 2, 5 and 14 are rejected under 35 U.S.C. 102(e) as being unpatentable by US Patent 6,426,594 to Ito.

In reference to claim 1, Ito discloses in figure 16, a power supply circuit that generates a plurality of potentials, with a first step-up (29B) connected to a regulator (29B). The output of the regulator is connected to a second step-up (24) to produce another potential voltage. And finally the several potentials can be generated from these three reference potentials.

In reference to claim 2, it can be seen that the potential created from the output of the regulator as the center potential, V_c.

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In reference to claim 5, it can be seen from figure 16, that the multipotential generator generates an intermediate voltage between the three reference voltages supply lines one, four and five. The intermediate voltages are created through resistive division and fed through the op amp.

In reference to claim 14, it can be seen from figure 5 that this power source is used in a matrix display with signal and scanning drivers.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito and Us Patent 5,668,710 to Caliboso et al.

In reference to claim 3, Ito teaches an invention very similar to the one being claimed, however he does not go into detail about the particulars of the charge pump circuit. Caliboso teaches a charge pump circuit that has been known to the art since 1997.

As shown in figure 1, Caliboso teaches a charge pump circuit that includes four switch circuits connected in series. A capacitor (10) is connected in parallel to the second and third switches where the second switch is connected to the Vcc and the fourth switch is connected to another potential (GND). The timing of Caliboso is also the same as the claimed invention as shown in figures 2 and 3 and described on column 5, lines 19-22.

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Ito's invention can be modified as to include Caliboso's charge pump, a simple component change.

One skilled in the art would have used Caliboso's invention because of the stability features of Caliboso's charge pump.

In reference to claim 4, it is apparent from figure 16 of Ito that the first and fifth power supply lines are connected to the charge pump circuit. One skilled in the art understands from the schematics described by Ito and Caliboso that the first supply is connected to first switch and the fifth power supply line to the fourth switch.

5. Claim 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito.

Ito teaches a multipotential generator that generates five voltages. He however does not disclose addition divisions to yield seven voltages. Nonetheless with Ito's disclosure, all one skilled in the art has to do to gain addition potentials is to replicate the established dividing scheme.

Naturally, one skilled in the art would have been motivated to increase the number of potentials if more voltages were needed to drive the circuit.

6. Claims 8, 9, 12, 13, and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ito and US Patent 5,909,146 to Okada.

As to claim 8, Ito's invention is similar to the one being claimed however his invention does not go into detail about the operational amplifiers included in the invention. Okada on the other hand, teaches an op-amp that resembles the one being claimed.

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It can be seen from figure 15, Okada teaches two differential amplifiers with two current control sources based on the outputs of the opposite amplifier. Two transistors (T9 and T10) interconnected on the outputs of the differential amplifiers.

Ito's invention can be modified by replacing his generic op-amp with Okada's op-amp.

One skilled would have used Okada's invention for it's low cost and increased amplification potential.

In reference to claim 9, it is apparent from figure 16 of Ito that the amplifier is connected to the resistive division, and from figure 8 of Okada that the rails are connected to the drains of the two transistors. One skilled in the art understands from the schematics described by Ito and Okada how to properly connect the components.

Claim 12 is rejected on the grounds of rejected presented in claims 8 and 5.

Claim 13 is rejected on the grounds of rejected presented in claims 9 and 5.

In reference to claims 15-19, it can be seen from figure 5 that this power source is used in a matrix LCD display with signal and scanning drivers.

7. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,909,146 to Okada.

The rejection of claims 10 and 11 are similar to the ones presented for the rejection of claims 8 and 9, minus the incorporation of Ito.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming-Hun Liu whose telephone number is 703-305-8488. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras can be reached on 703-305-9720. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ming-Hun Liu


DENNIS-DOON CHOW
PRIMARY EXAMINER